The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.
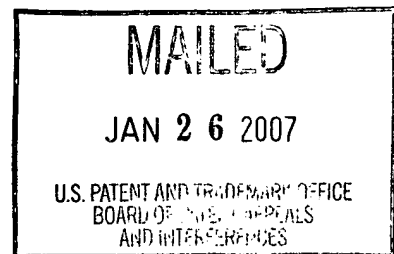
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SRIDHAR DATHATHRAYA

Appeal No. 2006-3120
Application No. 09/944,695

ON BRIEF

Before RUGGIERO, BLANKENSHIP, and MACDONALD, Administrative Patent Judges.

MACDONALD, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-8, 10-25, and 27-35, which constitute all the claims pending in this application.

The disclosed invention pertains to securely communicating with a network-connected printer. Specifically, documents that are encrypted with a public key are received and spooled into a printer memory. A user's private key corresponding to the public key is accepted and utilized to decrypt the

documents. The decrypted documents are then printed. Accordingly, security of

printing is enhanced since the documents remain encrypted at the printer, and

only the intended recipient can decrypt the documents prior to printing.

Representative claim 12 is reproduced as follows:

12. A method for secure communications to a network-connected printer,
the method comprising:
receiving documents spooled from a file server, encrypted
with a public key;
accepting a private key corresponding to the public key used
to encrypt the documents;
decrypting the documents with the private key; and,
printing the decrypted documents.

The examiner relies on the following references:

DeBry	6,385,728	May 7, 2002
		(filed Nov. 26, 1997)
Mazzagatte et al.	6,862,583	Mar. 1, 2005
(Mazzagatte)		(filed Oct. 4, 1999)

The following rejection is on appeal before us:

Claims 1-8, 10-25, and 27-35 stand rejected under 35 U.S.C. § 103(a) as

being unpatentable over Mazzagatte in view of DeBry.

Rather than repeat the arguments of appellant or the examiner, we make

reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection

advanced by the examiner and the evidence of obviousness relied upon by the

examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in the claims on appeal. Accordingly, we affirm.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The examiner must articulate reasons for the examiner's decision. In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002). In particular, the examiner must show that there is a teaching, motivation, or suggestion of a motivation to combine references relied on as evidence of obviousness. Id. at 1343, 61 USPQ2d at 1433-34. The examiner cannot simply reach conclusions based on the examiner's own understanding or experience - or on his or her assessment of what would be basic knowledge or common sense. Rather, the examiner must point to some concrete evidence in the record in support of these findings. In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d

1693, 1697 (Fed. Cir. 2001). Thus the examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the examiner's conclusion. However, a suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. In re Kahn, 441 F.3d 977, 987-88, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (citing In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000)). See also In re Thrift, 298 F. 3d 1357, 1363, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments

actually made by appellant have been considered in this decision. Arguments

which appellant could have made but chose not to make in the briefs have not

been considered and are deemed to be waived [see 37 CFR

§ 41.37(c)(1)(vii)(2004)].

Initially, we note that appellant has not separately argued independent

claims 1, 12, 19, and 29, but instead has argued the independent claims (along

with their respective dependent claims) as a group. Accordingly, we will select

the broadest independent claim – claim 12 – as representative. See 37 CFR

§ 41.37(c)(1)(vii).

Regarding the independent claims, the examiner's rejection essentially

finds that Mazzagatte teaches a secure printing method utilizing encryption with

every claimed feature except for specifically describing encrypting the document

to be printed using a public key. The examiner cites DeBry as teaching

encrypting a document to be printed with a symmetric key, and encrypting the

symmetric key with a public key. The examiner notes that the encrypted

document in DeBry is sent to the printer along with the key in order to decrypt the

public key and thereby decrypt the document for printing. The examiner finds

that, in view of DeBry, it would have been obvious to one of ordinary skill in the

art at the time of the invention to encrypt the document in Mazzagatte with a

public key prior to transmission to the printer to prevent unauthorized printing and

spoofing [answer, pages 4-20].

Appellant argues that the examiner failed to establish a prima facie case

of obviousness for three main reasons. First, the examiner's motivation to

combine the references – namely "to prevent unauthorized printing and spoofing"

– is a mere desired result that, unlike the claimed invention, cannot be achieved

with the cited references [brief, page 6]. Appellant emphasizes that unauthorized

printing is possible in the prior art arrangement since Mazzagatte's system only

encrypts at the printer, and a spoofer in DeBry's system could intercept

documents if they are able to fake the system printer's certification by encrypting

the symmetric key using the spoofer's public key [brief, pages 6 and 7]. In the

claimed invention, however, printing is secure because the user controls the

private key. In short, no decryption is possible until the user arrives at the printer

and enters their private key [brief, pages 7 and 8; reply brief, page 5]. Second,

appellant contends that there is no reasonable expectation that the claimed

invention could be derived from the teachings of the prior art – even by an

"expert" [brief, page 8].

Third, appellant argues that, even if the references are combined, the prior

art does not disclose all claimed limitations, namely (1) encrypting the document

with a public key; (2) accepting a private key at the printer; and (3) decrypting the

document with the private key [brief, page 8]. In this regard, appellant notes that

Mazzagatte does not describe the transmission of the document using a

public/private key pair. Also, DeBry does not encrypt the document using a

public key, but rather encrypts a symmetric key using a public key. Appellant

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emphasizes that the private key is not used to decrypt the document in DeBry, but rather to recover the symmetric key [brief, pages 8 and 9].

The examiner responds that there is ample motivation to combine the references since Mazzagatte "vaguely" refers to an asymmetric encryption technique (i.e., utilizing a public/private key pair) for securely printing documents, and DeBry teaches encrypting files with a public key prior to transmission. The user in DeBry then decrypts the file using the appropriate key which, according to the examiner, "can obviously be a private key" [answer, page 23].

The examiner also argues that appellant's arguments are not commensurate with the scope of the claims. In this regard, the examiner notes that the claims do not (1) recite details regarding the public key, nor (2) require the user to present a private key at the printer to decrypt documents [answer, pages 24 and 25].

We will sustain the examiner's rejection of independent claims 1, 12, 19, and 29. In our view, the scope and breadth of the claim language does not preclude Mazzagatte's secure printing system that, among other things, (1) encrypts print data with a symmetric key that is, in turn, encrypted by a public key, (2) decrypts the symmetric key with a private key corresponding to the public key, (3) decrypts the print data using the symmetric key, and (4) prints the decrypted print data.

Mazzagatte in Fig. 5 details the process that occurs after the sender submits a print job. First, the send node transmits data to the print node via

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secure transmission protocol (e.g., Secure Sockets Layer (SSL) or Transport

Layer Security (TLS)). Upon receipt, the print node:

> (1) generates a unique symmetric encryption key;

> (2) encrypts the data with the symmetric key;

> (3) encrypts the symmetric key with the print node's <u>public</u> key; and

> (4) stores the encrypted data.

[Mazzagatte, Fig. 5, steps S502-505; emphasis added].

The remainder of the process varies depending on whether the print node

is (1) an image forming device (i.e., a printer), or (2) a gateway to multiple image

forming devices. If the print node is a printer, then the process detailed in the

embodiment of Fig. 6 applies. Otherwise, the embodiments of Figs. 7A, 7B, or 8

apply [see Mazzagatte, col. 3, lines 22-40; col. 9, lines 35-40].

We turn our attention first to Fig. 7A (print node is a gateway). In that

embodiment, after authenticating the intended recipient, the print node:

> (1) obtains the encrypted symmetric key;

> (2) retrieves the encrypted print data;

> (3) decrypts the symmetric key with its <u>private</u> key;[1]

> (4) transmits the encrypted print data and decrypted symmetric key to the

printer via secure transmission protocol;

> Following these steps, the printer:

> (1) decrypts the print data with the symmetric key; and

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[1] Although this step is not specifically shown in the flowchart in Fig. 7A, it is described in col. 11, lines 17-22.

(2) prints the image based on the print data.

[Mazzagatte, Fig. 7A, steps S702-S712; col. 10, line 41 – col. 11, line 22; emphasis added].

As indicated above, the print data is encrypted with the symmetric key that is, in turn, encrypted with the print node's public key. Although the print node's public key encrypts the symmetric key that, in turn, encrypts the print data, the public key nonetheless encrypts the print data -- albeit indirectly. That is, the documents are encrypted by the print node's public key via the encrypted symmetric key.

Likewise, although the print node's private key decrypts the symmetric key that, in turn, decrypts the print data, the corresponding private key nonetheless decrypts the print data -- albeit indirectly. That is, the private key decrypts the print data via decrypting the symmetric key.

We further note the embodiment of Fig. 8 (print node is a gateway). In that embodiment, after authenticating the intended recipient, the print node:

(1) obtains the encrypted symmetric key;

(2) retrieves the encrypted print data;

(3) decrypts the symmetric key with its public key;

(4) re-encrypts the symmetric key with the printer's <u>public</u> key; and

(5) transmits the encrypted print data and encrypted symmetric key to the printer;

Following these steps, the printer:

(1) decrypts the symmetric key with the printer's <u>private</u> key;

(2) decrypts the print data with the symmetric key; and

(3) prints the image based on the print data.

[Mazzagatte, Fig. 8, steps S802-S814; col. 11, line 40 – col. 12, line 3; emphasis added].

Here again, the print data is encrypted with the symmetric key that is, in turn, encrypted with the printer's public key. As we indicated with respect to the embodiment of Fig. 7A, the public key (<u>i.e.</u>, the printer's public key) indirectly encrypts the print data via the symmetric key. Likewise, the printer's private key decrypts the print data indirectly via the symmetric key.

Turning to claim 12, the claim merely calls for, in pertinent part, encrypting documents to be printed with a public key and decrypting the documents with a private key corresponding to the public key. The scope and breadth of the claim language simply does not preclude Mazzagatte's indirect public/private key encryption and decryption of print data. Although appellant argues that the user does not control the private key in Mazzagatte and therefore such a system is not as secure as that of the claimed invention, appellant's arguments are simply not commensurate with the scope of the claim.

In short, the embodiments of both Fig. 7A and 8 of Mazzagatte actually anticipate at least claim 12. Nevertheless, obviousness rejections can be based on references that happen to anticipate the claimed subject matter. <u>In re Meyer</u>, 599 F.2d 1026, 1031, 202 USPQ 175, 179 (CCPA 1979). Moreover, in affirming

a multiple-reference rejection under 35 U.S.C. § 103, the Board may rely on less

than the total number of references relied on by the examiner. In re Bush, 296

F.2d 491, 496, 131 USPQ 263, 266- 67 (CCPA 1961); In re Boyer, 363 F.2d 455,

458 n.2, 150 USPQ 441, 444 n.2 (CCPA 1966). Accordingly, the teachings of

DeBry are merely cumulative to those found in Mazzagatte.

Notwithstanding our conclusion that Mazzagatte anticipates at least claim

12, we nonetheless agree with the examiner that the skilled artisan would have

reasonably combined the teachings of DeBry with Mazzagatte essentially for the

reasons stated by the examiner. We add, however, that DeBry expressly

teaches that the server can (1) encrypt the file using the printer's public key, (2)

send the encrypted file to the printer; and (3) decrypt the file using the

"appropriate key" [DeBry, col. 10, lines 18-22]. Although DeBry does not

specifically indicate what constitutes the "appropriate" key for decrypting the file

encrypted using the printer's public key, we nonetheless conclude that using the

printer's corresponding private key would have been readily apparent to the

skilled artisan in light of the collective teachings of the references.

Moreover, we disagree with appellant's assertion regarding the lack of

motivation to combine the references. Although appellant argues that there must

be a suggestion of motivation in the references [see brief, page 7], it is well

settled that the motivation to combine references need not be expressly stated in

the prior art references. Rather, a teaching, suggestion, or motivation to combine

references may be found in the knowledge of the skilled artisan or from the

nature of the problem to be solved. DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 1366, 80 USPQ2d 1641, 1649 (Fed. Cir. 2006). See also In re Kahn, 441 F.3d 977, 987-88, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Notably, when the source of motivation is not from the prior art references, "the 'evidence' of motive will likely consist of an explanation of the well-known principle or problem-solving strategy to be applied." DyStar, 464 F.3d at 1366, 80 USPQ2d at 1649. We find the skilled artisan would have ample motivation to combine DeBry's teachings with Mazzagatte essentially for the reasons stated by the examiner. We further note that appellant's arguments regarding the lack of a teaching or suggestion that the user controls the private key is simply not commensurate with the scope of the claims.

For at least the above reasons, we will sustain the examiner's rejection of independent claims 1, 12, 19, and 29. Since appellant has not separately argued the patentability of the dependent claims, these claims fall with the independent claims. See In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987). See also 37 CFR § 41.37(c)(vii).

In summary, we have sustained the examiner's rejection with respect to all claims on appeal. Therefore, the decision of the examiner rejecting claims 1-8, 10-25, and 27-35 is affirmed.

No time period for taking any subsequent action in connection with this

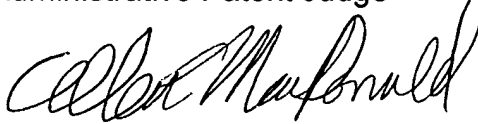appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

<u>AFFIRMED</u>

JOSEPH F. RUGGIERO   )
Administrative Patent Judge   )
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)   BOARD OF PATENT
HOWARD B. BLANKENSHIP   )   APPEALS AND
Administrative Patent Judge   )   INTERFERENCES
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ALLEN R. MACDONALD   )
Administrative Patent Judge   )

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